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|---|---|
| STARKS, WILBERT L | |
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| 2129 | |

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Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 09/823,977 | AGRAFIOTIS ET AL. | |
| | Examiner | Art Unit | |
| | Wilbert L. Starks, Jr. | 2129 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *06 June 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-27* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-27* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### Preliminaries (Legal Roadmap)

1. Claims 1-27 have been examined.

2. In response to Examiner's 35 U.S.C. §101 rejections in this case, applicant's representative requested of Examiner a more detailed style of rejection that provides even more clarity regarding the §101 issues raised. Examiner will gladly cooperate with the representative and will endeavor to assist him by presenting an augmented presentation that, hopefully, will make the issues and analyses presented herein clear and easy to understand for all readers.

3. Accordingly, Examiner will make this action NONFINAL in order to preserve Applicant's rights to due process in this case (i.e., providing Applicant further opportunity to comment on the notices of rejection to be made herein.)

4. During the act of clarifying the §101 issues in this case, Examiner discovered insights regarding the type of invention Applicant intends to claim (which is quite a bit more than the simple mapping alluded to in Applicant's claims.) A search pursuant to these discoveries produced further §102(b) art that Examiner believes more clearly anticipates Applicant's invention.

5. In short, Examiner believes that the equations presented in Applicant's claims are drawn to a basic cascade of an unsupervised learning algorithm with a supervised learning algorithm.

6. More precisely, the unsupervised learning algorithm is used to find and label classes of reoccurring patterns found in a statistical data series. Secondly, these data mappings discovered by the unsupervised algorithm are then used to train the supervised learning algorithm. Since supervised algorithms are only as good as the training sets presented to them, it makes sense to use an unsupervised A.I. clustering algorithm to find a proper training set. This method was often used in the 1990's and Examiner will present prior art from 1996 published by IEEE that clearly shows such an algorithmic structure.

7. Well, now to the details of the rejections...

***Claim Rejections - 35 U.S.C. §101***

1. 35 U.S.C. §101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

the invention as disclosed in claims 1-27 is directed to non-statutory subject matter.

2. Regardless of whether any of the claims are in the technological arts, none of them is limited to practical applications in the technological arts. Examiner finds that *In re Warmerdam*, 33 F.3d 1354, 31 USPQ2d 1754 (Fed. Cir. 1994) controls the 35 U.S.C. §101 issues on that point for reasons made clear by the Federal Circuit in *AT&T Corp. v. Excel Communications, Inc.*, 50 USPQ2d 1447 (Fed. Cir. 1999). Specifically, the Federal Circuit held that the act of:

> ...[T]aking several abstract ideas and manipulating them together adds nothing to the basic equation. *AT&T v. Excel* at 1453 quoting *In re Warmerdam*, 33 F.3d 1354, 1360 (Fed. Cir. 1994).

Examiner finds that Applicant's "input patterns" references are just such abstract ideas.

3. Examiner bases his position upon guidance provided by the Federal Circuit in *In re Warmerdam*, as interpreted by *AT&T v. Excel*. This set of precedents is within the same line of cases as the *Alappat-State Street Bank* decisions and is in complete agreement with those decisions. *Warmerdam* is consistent with *State Street*'s holding that:

> Today we hold that *the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price*, constitutes a practical application of a mathematical algorithm, formula, or calculation because it produces 'a useful, concrete and tangible result" -- *a final share price momentarily fixed for recording purposes and even accepted and relied upon by regulatory authorities and in subsequent trades.* (emphasis added) *State Street Bank* at 1601.

4. True enough, that case later eliminated the "business method exception" in order to show that business methods were not per se nonstatutory, but the court clearly *did not* go so far as to make business methods *per se statutory*. A plain reading of the excerpt above shows that the Court was *very specific* in its definition of the new *practical application*. It would have been much easier for the court to say that "business methods were per se statutory" than it was to define the practical application in the case as "...the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price..."

5. The court was being very specific.

6. Additionally, the court was also careful to specify that the "useful, concrete and tangible result" it found was "a final share price momentarily fixed for recording purposes and even accepted and relied upon by regulatory authorities and in subsequent trades." (i.e. the trading activity is the further practical use of the real world monetary data beyond the transformation in the computer – i.e., "post-processing activity".)

7. Applicant cites no such specific results to define a useful, concrete and tangible result. Neither does Applicant specify the associated practical application with the kind of specificity the Federal Circuit used.

8. Furthermore, in the case *In re Warmerdam*, the Federal Circuit held that:

> ...[T]he dispositive issue for assessing compliance with Section 101 in this case is whether the claim is for a process that goes beyond simply manipulating 'abstract ideas' or 'natural phenomena' ... As the Supreme Court has made clear, '[a]n idea of itself is not patentable, ... *taking several abstract ideas and manipulating them together adds nothing to the basic equation*. In re Warmerdam 31 USPQ2d at 1759 (emphasis added).

9. Since the Federal Circuit held in *Warmerdam* that this is the "dispositive issue" when it judged the usefulness, concreteness, and tangibility of the claim limitations in that case, Examiner in the present case views this holding as the dispositive issue for determining whether a claim is "useful, concrete, and tangible" in similar cases. Accordingly, the Examiner finds that Applicant manipulated a set of abstract "input patterns" to solve purely algorithmic problems in the abstract (i.e., what *kind* of "input pattern" is used? Algebraic word problems? Boolean logic problems? Fuzzy logic algorithms? Probabilistic word problems? Philosophical ideas? Even vague expressions, about which even reasonable persons could differ as to their meaning? Combinations thereof?) Clearly, a claim for manipulation of "input patterns" is provably even more abstract (and thereby less limited in practical application) than pure "mathematical algorithms" which the Supreme Court has held are per se nonstatutory – in fact, it *includes* the expression of nonstatutory mathematical algorithms.

10. Since the claims are not limited to exclude such abstractions, the broadest reasonable interpretation of the claim limitations includes such abstractions. Therefore, the claims are impermissibly abstract under 35 U.S.C. §101 doctrine.

11. Since *Warmerdam* is within the *Alappat-State Street Bank* line of cases, it takes the same view of "useful, concrete, and tangible" the Federal Circuit applied in *State Street Bank*. Therefore, under *State Street Bank*, this could not be a "useful, concrete and tangible result". There is only manipulation of abstract ideas.

12. The Federal Circuit validated the use of *Warmerdam* in its more recent *AT&T Corp. v. Excel Communications, Inc.* decision. The Court reminded us that:

> Finally, **the decision in In re Warmerdam**, 33 F.3d 1354, 31 USPQ2d 1754 (Fed. Cir. 1994) **is not to the contrary**. *** The court found that the claimed process did nothing more than manipulate basic mathematical constructs and concluded that **'taking several abstract ideas and manipulating them together adds nothing to the basic equation'**; hence, the court held that the claims were properly rejected under §101 ... Whether one agrees with the court's conclusion on the facts, the **holding** of the case is a straightforward application of the basic principle that mere laws of nature, natural phenomena, and abstract ideas are not within the categories of inventions or discoveries that may be patented under §101. (emphasis added) AT&T Corp. v. Excel Communications, Inc., 50 USPQ2d 1447, 1453 (Fed. Cir. 1999).

13. Remember that in *In re Warmerdam*, the Court said that this was the dispositive issue to be considered. In the *AT&T* decision cited above, the Court reaffirms that this is the issue for assessing the "useful, concrete, and tangible" nature of a set of claims under 101 doctrine. Accordingly, Examiner views the *Warmerdam* holding as the dispositive issue in this analogous case.

14. The fact that the invention is merely the manipulation of *abstract ideas* is clear. The data referred to by Applicant's phrase "input patterns" is simply an abstract construct that does not limit the claims to the transformation of real world data (such as monetary data or heart rhythm data) by some disclosed process. Consequently, the necessary conclusion under *AT&T, State Street* and *Warmerdam,* is straightforward and

clear. The claims take several abstract ideas (i.e., "input patterns" in the abstract) and manipulate them together adding nothing to the basic equation. Claims 1-27 are, thereby, rejected under 35 U.S.C. §101.

## Claim-by-Claim Explanation of the Above Analysis

### Claim 1

In seeking this claim-by-claim analysis, Applicant essentially seeks to have Examiner "prove a negative," as it were. Ordinarily a difficult logical effort. Fortunately, the Federal Circuit provided powerful tools for analysis.

As stated in the above §101 analysis, Applicant seeks to mathematically map "input patterns." Under Warmerdam, taking such abstract things and manipulating (i.e., using an algorithm) them together adds nothing to the basic equation (i.e., the original algorithm.) It is settled law that mathematical algorithms are per se non-statutory. Further, the Federal Circuit has adjudicated that the manipulation of abstract data by such algorithms are also nonstatutory. Applicant is free to present claim elements in further responses to these rejections that he feels make the claims statutory. Until that time, it is Examiner's official finding that this claim is not statutory.

### Claim 2

Claim 2 is dependent on claim 1. Therefore, the elements of claim 1 are incorporated by reference into claim 2...including the mathematical mapping of the

"input patterns." On that basis, the same application of Warmerdam to the independent claim applies to this claim. The only issue here is whether the act of encoding the mapping to a neural network is statutory. It is well settled in USPTO practice that an artificial neural network is a mathematical algorithm (a "nonlinear regression" or "pattern matching" technique to be exact.) For this reason, artificial neural networks are statutory only when they are trained with real-world data from a limitation to a practical application. Again, Applicant only claimed the mapping of "input patterns." That defect, therefore, infects this claim as well. Since abstract "input patterns" are not real-world data from a limitation to a practical application, the neural network is not being trained with real world data and remains a mere algorithm.

Applicant is free to present claim elements in further responses to these rejections that he feels make the claims statutory. Until that time, it is Examiner's official finding that this claim is not statutory.

**Claim 3**

Claim 3 is dependent on claim 1. Therefore, the elements of claim 1 are incorporated by reference into claim 3...including the mathematical mapping of the "input patterns." On that basis, the same application of Warmerdam to the independent claim applies to this claim. The only issue here is whether any new statutory material is presented in this claim.

Applicant introduces no real-world data nor any other statutory material, therefore, this claim fails the Federal Circuit's test under Warmerdam.

Applicant is free to present claim elements in further responses to these rejections that he feels make the claims statutory. Until that time, it is Examiner's official finding that this claim is not statutory.

**Claim 4**

Claim 4 is dependent on claim 3. Therefore, the elements of claim 3 are incorporated by reference into claim 4...including the mathematical mapping of the "input patterns." On that basis, the same application of Warmerdam to the independent claim applies to this claim. The only issue here is whether the act of encoding the mapping to a neural network is statutory. It is well settled in USPTO practice that an artificial neural network is a mathematical algorithm (a "nonlinear regression" or "pattern matching" technique to be exact.) For this reason, artificial neural networks are statutory only when they are trained with real-world data from a limitation to a practical application. Again, Applicant only claimed the mapping of "input patterns." That defect, therefore, infects this claim as well. Since abstract "input patterns" are not real-world data from a limitation to a practical application, the neural network is not being trained with real world data and remains a mere algorithm.

Applicant is free to present claim elements in further responses to these rejections that he feels make the claims statutory. Until that time, it is Examiner's official finding that this claim is not statutory.

**Claim 5**

Claim 5 is dependent on claim 3. Therefore, the elements of claim 3 are incorporated by reference into claim 5...including the mathematical mapping of the "input patterns." On that basis, the same application of Warmerdam to the independent claim applies to this claim. The only issue here is whether any new statutory material is presented in this claim.

Applicant introduces no real-world data nor any other statutory material, therefore, this claim fails the Federal Circuit's test under Warmerdam.

Applicant is free to present claim elements in further responses to these rejections that he feels make the claims statutory. Until that time, it is Examiner's official finding that this claim is not statutory.

**Claim 6**

Claim 6 is dependent on claim 5. Therefore, the elements of claim 5 are incorporated by reference into claim 6...including the mathematical mapping of the "input patterns." On that basis, the same application of Warmerdam to the independent claim applies to this claim. The only issue here is whether the act of encoding the mapping to a neural network is statutory. It is well settled in USPTO practice that an artificial neural network is a mathematical algorithm (a "nonlinear regression" or "pattern matching" technique to be exact.) For this reason, artificial neural networks are statutory only when they are trained with real-world data from a limitation to a practical application. Again, Applicant only claimed the mapping of "input patterns." That defect, therefore, infects this claim as well. Since abstract "input patterns" are not real-world

data from a limitation to a practical application, the neural network is not being trained with real world data and remains a mere algorithm.

Applicant is free to present claim elements in further responses to these rejections that he feels make the claims statutory. Until that time, it is Examiner's official finding that this claim is not statutory.

**Claim 7**

Claim 7 is dependent on claim 3. Therefore, the elements of claim 3 are incorporated by reference into claim 7...including the mathematical mapping of the "input patterns." On that basis, the same application of Warmerdam to the independent claim applies to this claim. The only issue here is whether the act of using a clustering algorithm on the data is statutory. Clustering is an unsupervised learning algorithm that may be implemented by using a competitive neural network algorithm, a neural gas algorithm, a Kohonen network algorithm, etc. It is well settled in USPTO practice that an artificial neural network is a mathematical algorithm (a "nonlinear regression" or "pattern matching" technique to be exact.) For this reason, artificial neural networks are statutory only when they are trained with real-world data from a limitation to a practical application. Again, Applicant only claimed the mapping of "input patterns." That defect, therefore, infects this claim as well. Since abstract "input patterns" are not real-world data from a limitation to a practical application, the neural network is not being trained with real world data and remains a mere algorithm.

Applicant is free to present claim elements in further responses to these rejections that he feels make the claims statutory. Until that time, it is Examiner's official finding that this claim is not statutory.

**Claim 8**

Claim 8 is dependent on claim 1. Therefore, the elements of claim 1 are incorporated by reference into claim 8...including the mathematical mapping of the "input patterns." On that basis, the same application of Warmerdam to the independent claim applies to this claim. The only issue here is whether any new statutory material is presented in this claim.

Applicant introduces no real-world data nor any other statutory material, therefore, this claim fails the Federal Circuit's test under Warmerdam.

Applicant is free to present claim elements in further responses to these rejections that he feels make the claims statutory. Until that time, it is Examiner's official finding that this claim is not statutory.

**Claim 9**

Claim 9 is dependent on claim 8. Therefore, the elements of claim 8 are incorporated by reference into claim 9...including the mathematical mapping of the "input patterns." On that basis, the same application of Warmerdam to the independent claim applies to this claim. The only issue here is whether the act of encoding the mapping to a neural network is statutory. It is well settled in USPTO practice that an artificial neural network is a mathematical algorithm (a "nonlinear regression" or "pattern

matching" technique to be exact.) For this reason, artificial neural networks are statutory only when they are trained with real-world data from a limitation to a practical application. Again, Applicant only claimed the mapping of "input patterns." That defect, therefore, infects this claim as well. Since abstract "input patterns" are not real-world data from a limitation to a practical application, the neural network is not being trained with real world data and remains a mere algorithm.

Applicant is free to present claim elements in further responses to these rejections that he feels make the claims statutory. Until that time, it is Examiner's official finding that this claim is not statutory.

**Claim 10**

Claim 10 is dependent on claim 8. Therefore, the elements of claim 8 are incorporated by reference into claim 10...including the mathematical mapping of the "input patterns." On that basis, the same application of Warmerdam to the independent claim applies to this claim. The only issue here is whether any new statutory material is presented in this claim.

Applicant introduces no real-world data nor any other statutory material, therefore, this claim fails the Federal Circuit's test under Warmerdam.

Applicant is free to present claim elements in further responses to these rejections that he feels make the claims statutory. Until that time, it is Examiner's official finding that this claim is not statutory.

**Claim 11**

Claim 11 is dependent on claim 10. Therefore, the elements of claim 10 are incorporated by reference into claim 11...including the mathematical mapping of the "input patterns." On that basis, the same application of Warmerdam to the independent claim applies to this claim. The only issue here is whether the act of encoding the mapping to a neural network is statutory. It is well settled in USPTO practice that an artificial neural network is a mathematical algorithm (a "nonlinear regression" or "pattern matching" technique to be exact.) For this reason, artificial neural networks are statutory only when they are trained with real-world data from a limitation to a practical application. Again, Applicant only claimed the mapping of "input patterns." That defect, therefore, infects this claim as well. Since abstract "input patterns" are not real-world data from a limitation to a practical application, the neural network is not being trained with real world data and remains a mere algorithm.

Applicant is free to present claim elements in further responses to these rejections that he feels make the claims statutory. Until that time, it is Examiner's official finding that this claim is not statutory.

**Claim 12**

Claim 12 is dependent on claim 8. Therefore, the elements of claim 8 are incorporated by reference into claim 12...including the mathematical mapping of the "input patterns." On that basis, the same application of Warmerdam to the independent claim applies to this claim. The only issue here is whether the act of using a clustering

algorithm on the data is statutory. Clustering is an unsupervised learning algorithm that may be implemented by using a competitive neural network algorithm, a neural gas algorithm, a Kohonen network algorithm, etc. It is well settled in USPTO practice that an artificial neural network is a mathematical algorithm (a "nonlinear regression" or "pattern matching" technique to be exact.) For this reason, artificial neural networks are statutory only when they are trained with real-world data from a limitation to a practical application. Again, Applicant only claimed the mapping of "input patterns." That defect, therefore, infects this claim as well. Since abstract "input patterns" are not real-world data from a limitation to a practical application, the neural network is not being trained with real world data and remains a mere algorithm.

Applicant is free to present claim elements in further responses to these rejections that he feels make the claims statutory. Until that time, it is Examiner's official finding that this claim is not statutory.

**Claim 13**

Claim 13 is dependent on claim 1. Therefore, the elements of claim 1 are incorporated by reference into claim 13...including the mathematical mapping of the "input patterns." On that basis, the same application of Warmerdam to the independent claim applies to this claim. The only issue here is whether any new statutory material is presented in this claim.

Applicant introduces no real-world data nor any other statutory material, therefore, this claim fails the Federal Circuit's test under Warmerdam.

Applicant is free to present claim elements in further responses to these rejections that he feels make the claims statutory. Until that time, it is Examiner's official finding that this claim is not statutory.

**Claim 14**

Claim 14 is dependent on claim 1. Therefore, the elements of claim 1 are incorporated by reference into claim 14...including the mathematical mapping of the "input patterns." On that basis, the same application of Warmerdam to the independent claim applies to this claim. The only issue here is whether any new statutory material is presented in this claim.

Applicant introduces no real-world data nor any other statutory material, therefore, this claim fails the Federal Circuit's test under Warmerdam.

Applicant is free to present claim elements in further responses to these rejections that he feels make the claims statutory. Until that time, it is Examiner's official finding that this claim is not statutory.

**Claim 15**

Claim 15 is dependent on claim 1. Therefore, the elements of claim 1 are incorporated by reference into claim 15...including the mathematical mapping of the "input patterns." On that basis, the same application of Warmerdam to the independent claim applies to this claim. The only issue here is whether any new statutory material is presented in this claim.

Applicant introduces no real-world data nor any other statutory material, therefore, this claim fails the Federal Circuit's test under Warmerdam.

Applicant is free to present claim elements in further responses to these rejections that he feels make the claims statutory. Until that time, it is Examiner's official finding that this claim is not statutory.

**Claim 16**

Claim 16 is dependent on claim 15. Therefore, the elements of claim 15 are incorporated by reference into claim 16...including the mathematical mapping of the "input patterns." On that basis, the same application of Warmerdam to the independent claim applies to this claim. The only issue here is whether any new statutory material is presented in this claim.

Applicant introduces no real-world data nor any other statutory material, therefore, this claim fails the Federal Circuit's test under Warmerdam.

Applicant is free to present claim elements in further responses to these rejections that he feels make the claims statutory. Until that time, it is Examiner's official finding that this claim is not statutory.

**Claim 17**

Claim 17 is dependent on claim 16. Therefore, the elements of claim 16 are incorporated by reference into claim 17...including the mathematical mapping of the "input patterns." On that basis, the same application of Warmerdam to the independent

claim applies to this claim. The only issue here is whether any new statutory material is presented in this claim.

Applicant introduces no real-world data nor any other statutory material, therefore, this claim fails the Federal Circuit's test under Warmerdam.

Applicant is free to present claim elements in further responses to these rejections that he feels make the claims statutory. Until that time, it is Examiner's official finding that this claim is not statutory.

**Claim 18**

Claim 18 is dependent on claim 17. Therefore, the elements of claim 17 are incorporated by reference into claim 18...including the mathematical mapping of the "input patterns." On that basis, the same application of Warmerdam to the independent claim applies to this claim. The only issue here is whether any new statutory material is presented in this claim.

Applicant introduces no real-world data nor any other statutory material, therefore, this claim fails the Federal Circuit's test under Warmerdam.

Applicant is free to present claim elements in further responses to these rejections that he feels make the claims statutory. Until that time, it is Examiner's official finding that this claim is not statutory.

**Claim 19**

Claim 19 is dependent on claim 1. Therefore, the elements of claim 1 are incorporated by reference into claim 19...including the mathematical mapping of the "input patterns." On that basis, the same application of Warmerdam to the independent claim applies to this claim. The only issue here is whether "receiving pairwise relationship data via a communications path coupled to a computer; and storing the received pairwise relationship data in a memory" is statutory.

Well, Applicant includes no limitations reciting the location from where the data is being received. The origin of this data could reasonably be a keyboard...a data source that does not by itself bring statutory matter to the claim. Further, a standard computer has a memory, so that has not been specifically limited either. Examiner finds that this claim is arguably limited to practice on a computer, but nothing more. Practice on a computer brings a claim into the technological arts, but more is needed to make such a claim statutory.

Applicant introduces no real-world data nor any other statutory material, therefore, this claim fails the Federal Circuit's test under Warmerdam.

Applicant is free to present claim elements in further responses to these rejections that he feels make the claims statutory. Until that time, it is Examiner's official finding that this claim is not statutory.

**Claim 20**

Claim 20 is dependent on claim 1. Therefore, the elements of claim 1 are incorporated by reference into claim 20...including the mathematical mapping of the

"input patterns." On that basis, the same application of Warmerdam to the independent claim applies to this claim. The only issue here is whether any new statutory material is presented in this claim. Applicant discloses the transmission of information about the selected pair of patterns to a remote computer system. Again, the origin of this transmission is not limited...is it a keyboard? Applicant did not say exactly to what distance the word "remote" refers.

Further, "receiving pairwise relationship data about the selected pair of patterns from the remote computer system" could be just a monitor. There are no limitations to the contrary.

Applicant introduces no real-world data nor any other statutory material, therefore, this claim fails the Federal Circuit's test under Warmerdam.

Applicant is free to present claim elements in further responses to these rejections that he feels make the claims statutory. Until that time, it is Examiner's official finding that this claim is not statutory.

**Claim 21**

Claim 22 is dependent on claim 21. Therefore, the elements of claim 21 are incorporated by reference into claim 22...including the mathematical mapping of the "input patterns." On that basis, the same application of Warmerdam to the independent claim applies to this claim. The only issue here is whether the mention of the word "compounds" adds statutory matter. Examiner does not believe so. Examiner believes that the word "compounds" refers to a "field of use" that encompasses myriad possible

undefined inventions. For example, is it identifying compounds in a distant through a telescope? Is it identifying compounds in a bomb detector? Is it identifying compounds in the breath if a scuba diver? Is it identifying compounds that determine the production of the ideal doughnut in a production line? No limitations are available in the claims to answer this question.

Applicant introduces no real-world data nor any other statutory material, therefore, this claim fails the Federal Circuit's test under Warmerdam.

Applicant is free to present claim elements in further responses to these rejections that he feels make the claims statutory. Until that time, it is Examiner's official finding that this claim is not statutory.

**Claim 22**

Claim 22 is dependent on claim 21. Therefore, the elements of claim 21 are incorporated by reference into claim 22...including the mathematical mapping of the "input patterns." On that basis, the same application of Warmerdam to the independent claim applies to this claim. The only issue here is whether any new statutory material is presented in this claim.

Applicant introduces no real-world data nor any other statutory material, therefore, this claim fails the Federal Circuit's test under Warmerdam.

Applicant is free to present claim elements in further responses to these rejections that he feels make the claims statutory. Until that time, it is Examiner's official finding that this claim is not statutory.

**Claim 23**

Claim 23 is an independent claim. Therefore, the elements that disclose computer procedures that "enable" the computer to transmit and receive data are at issue. Such software is standard to every "computer" sold and is required to operate the modem. In order to find a computer that does not have this software, one would have to specially order or make one without it.

Further, Applicant's claims do not require the software to be used for anything...just that it provide the ability to do something.

Further, the data is not "real-world"...it is just a "plurality of patterns." On that basis, the same application of Warmerdam to the independent claim applies to this claim. The only issue here is whether any new statutory material is presented in this claim.

Applicant introduces no real-world data nor any other statutory material, therefore, this claim fails the Federal Circuit's test under Warmerdam.

Applicant is free to present claim elements in further responses to these rejections that he feels make the claims statutory. Until that time, it is Examiner's official finding that this claim is not statutory.

**Claim 24**

Claim 24 is dependent on claim 23. Therefore, the elements of claim 23 are incorporated by reference into claim 24...including the mathematical mapping of the

"input patterns." On that basis, the same application of Warmerdam to the independent claim applies to this claim. The only issue here is whether any new statutory material is presented in this claim.

Applicant introduces no real-world data nor any other statutory material, therefore, this claim fails the Federal Circuit's test under Warmerdam.

Applicant is free to present claim elements in further responses to these rejections that he feels make the claims statutory. Until that time, it is Examiner's official finding that this claim is not statutory.

**Claim 25**

Claim 25 is dependent on claim 24. Therefore, the elements of claim 24 are incorporated by reference into claim 25...including the mathematical mapping of the "input patterns." On that basis, the same application of Warmerdam to the independent claim applies to this claim. The only issue here is whether any new statutory material is presented in this claim.

Applicant introduces no real-world data nor any other statutory material, therefore, this claim fails the Federal Circuit's test under Warmerdam.

Applicant is free to present claim elements in further responses to these rejections that he feels make the claims statutory. Until that time, it is Examiner's official finding that this claim is not statutory.

**Claim 26**

Claim 26 is an independent claim. Therefore, the mathematical mapping of the "input patterns" is present in this claim. On that basis, the same application of Warmerdam applies to this claim.

Applicant introduces no real-world data nor any other statutory material, therefore, this claim fails the Federal Circuit's test under Warmerdam.

Applicant is free to present claim elements in further responses to these rejections that he feels make the claims statutory. Until that time, it is Examiner's official finding that this claim is not statutory.

**Claim 27**

Claim 27 is an independent claim. Therefore, the mathematical mapping of the "input patterns" is present in this claim. On that basis, the same application of Warmerdam applies to this claim.

Applicant introduces no real-world data nor any other statutory material, therefore, this claim fails the Federal Circuit's test under Warmerdam.

Applicant is free to present claim elements in further responses to these rejections that he feels make the claims statutory. Until that time, it is Examiner's official finding that this claim is not statutory.

***Claim Rejections - 35 U.S.C. §112***

15. The following is a quotation of the first paragraph of 35 U.S.C. §112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the

> art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

16. Claims 1-27 are rejected under 35 U.S.C. §112, first paragraph because current case law (and accordingly, the MPEP) require such a rejection if a §101 rejection is given because when Applicant has not in fact disclosed the practical application for the invention, as a matter of law there is no way Applicant could have disclosed *how* to practice the *undisclosed* practical application. This is how the MPEP puts it:

> ("The how to use prong of section 112 **incorporates as a matter of law** the requirement of 35 U.S.C. §101 that the specification disclose as a matter of fact a practical utility for the invention.... If the application fails as a matter of fact to satisfy 35 U.S.C. §101, then the application **also fails as a matter of law** to enable one of ordinary skill in the art to use the invention under 35 U.S.C. §112."); In re Kirk, 376 F.2d 936, 942, 153 USPQ 48, 53 (CCPA 1967) ("Necessarily, compliance with § 112 requires a description of how to use presently useful inventions, **otherwise an applicant would anomalously be required to teach how to use a useless invention**.") See, MPEP 2107.01(IV), quoting In re Kirk (emphasis added).

Therefore, claims 1-27 are rejected on this basis.

### *Claim Rejections - 35 USC § 102*

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-15 and 26-27 are rejected under 35 U.S.C. 102(b) as being anticipated by Arslan, The BP Neural Networks With Data Clustering Enhancement - An Emerging

Optimization Tool, Proceedings of the 1996 IEEE International Symposium on Intelligent Control, Dearborn, MI, September 15-18, 1996, pp.188-193. Specifically:

**Claim 1**

Claim element 1(a) describes the selection of a training set. Claim elements 1(b) and 1(c) describe a standard process of unsupervised learning...a clustering process. Claim element 1(d) is a labeling process for the discovered clusters. Claim elements 1(e), 1(f), 1(g) describe a supervised learning algorithm.

Claim 1(a) is anticipated by Arslan, page 188, left column, Abstract.

Claim 1(b) is anticipated by Arslan, page 188, left column, Abstract.

Claim 1(c) is anticipated by Arslan, page 188, left column, Abstract.

Claim 1(d) is anticipated by Arslan, page 188, right column, first full paragraph.

Claim 1(e) is anticipated by Arslan, page 189, Fig. 2.

Claim 1(f) is anticipated by Arslan, page 189, Fig. 2.

Claim 1(g) is anticipated by Arslan, page 189, Fig. 2.

**Claim 2**

Claim 2's "neural network" is anticipated by Arslan, page 189, Fig. 2.

**Claim 3**

Claim 2 is anticipated by Arslan, page 189, Fig. 2.

**Claim 4**

Claim 4's "neural network" is anticipated by Arslan, page 189, Fig. 2.

**Claim 5**

Claim 5 is anticipated by Arslan, page 188, left column, Abstract.

**Claim 6**

Claim 6's "neural network" is anticipated by Arslan, page 189, Fig. 2.

**Claim 7**

Claim 7's "clustering algorithm" is anticipated by Arslan, page 188, right column, first full paragraph.

**Claim 8**

Claim 8 is anticipated by Arslan, page 189, Fig. 2.

**Claim 9**

Claim 9's "neural network" is anticipated by Arslan, page 189, Fig. 2.

**Claim 10**

Claim 10 is anticipated by Arslan, page 188, left column, Abstract.

**Claim 11**

Claim 11's "neural network" is anticipated by Arslan, page 189, Fig. 2.

**Claim 12**

Claim 12's "clustering algorithm" is anticipated by Arslan, page 188, right column, first full paragraph.

**Claim 13**

Claim 13 is anticipated by Arslan, page 188, left column, Abstract.

**Claim 14**

Claim 14 is anticipated by Arslan, page 188, left column, Abstract.

**Claim 15**

Claim 15 is anticipated by Arslan, page 188, right column, first full paragraph.

**Claim 26**

Claim 26's "selecting of k patterns" is anticipated by Arslan, page 188, left column, Abstract.

Claim 26's "determining at least some pairwise relationships" is anticipated by Arslan, page 188, right column, first full paragraph.

Claim 26's "mapping the patterns" is anticipated by Arslan, page 188, right column, first full paragraph.

Claim 26's "determining a set of n attributes" is anticipated by Arslan, page 188, right column, first full paragraph.

Claim 26's "forming a training set" is anticipated by Arslan, page 188, right column, first full paragraph.

Claim 26's "supervised machine learning" is anticipated by Arslan, page 188, right column, first full paragraph.

Claim 26's "mapping additional patterns" is anticipated by Arslan, page 188, right column, first full paragraph.

**Claim 27**

Claim 27's "selecting of k patterns" is anticipated by Arslan, page 188, left column, Abstract.

Claim 27's "determining at least some pairwise relationships" is anticipated by Arslan, page 188, right column, first full paragraph.

Claim 27's "mapping the patterns" is anticipated by Arslan, page 188, right column, first full paragraph.

Claim 27's "determining a set of n attributes" is anticipated by Arslan, page 188, right column, first full paragraph.

Claim 27's "forming a training set" is anticipated by Arslan, page 188, right column, first full paragraph.

Claim 27's "supervised machine learning" is anticipated by Arslan, page 188, right column, first full paragraph.

Claim 27's "mapping additional patterns" is anticipated by Arslan, page 188, right column, first full paragraph

***Conclusion***

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

A. Sirosh (U.S. Patent Number US 6,226,408 B1; dated 01 MAY 2001; class 382; subclass 224) discloses unsupervised identification of nonlinear data cluster in multidimensional data.

B. Fischthal (U.S. Patent Number US 5,822,741 A; dated 13 OCT 1998; class 706; subclass 016) discloses a neural network/conceptual clustering fraud detection architecture.

C. Guiver et al. (U.S. Patent Number US 5,809,490 A; dated 15 SEP 1998; class 706; subclass 016) discloses an apparatus and method for selecting a working data set for model development.

Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Wilbert L. Starks, Jr. whose telephone number is (571) 272-3691.

Alternatively, inquiries may be directed to the following:

| | |
|---|---|
| **S. P. E. Anthony Knight** | **(571) 272-3687** |
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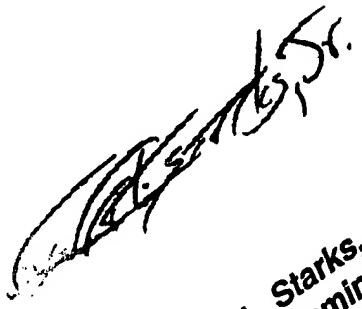

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Art Unit - 2121

WLS

20 August 2005